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DMXking eDMX4 MAX ISODIN22 4 Port ArtNet or sACN Via Ethernet to DMX 512 Converter User Manual

eDMX4 MAX ISODIN22

USER MANUAL

Contents [**hide**]

INTRODUCTION

Thanks for purchasing a DMXking product. Our aim is to bring you high quality products with great features we know you'll appreciate.

HARDWARE AND FIRMWARE VERSIONS

From time-to-time minor hardware changes occur in our products usually small feature additions or unseen optimizations. The table below lists eDMX4 MAX ISODIN22 product variants. Check the product label for P/N details.

Part Number	Feature addition
0130-1.1	Initial product release

Firmware updates are released on a semi-regular basis. We recommend updating to the latest available firmware version so all product features are available. Please take note the user manual reflects latest firmware version features unless otherwise noted.

Firmware Version	Comments
V4.0	Initial release. RDM support disabled.
V4.1	Improved port LED intensity. Fixed startup hang with certain SD cards.
V4.2	DMX-IN recording issue fix. ArtNet subnet broadcast traffic issue fix – resolves problem with being unable to scan for (L)eDMX MAX units.

MAIN FEATURES

– Wide input power range 7-28Vdc
– DIN rail mount 22.5mm wide
– Static or DHCP IPv4 network addressing
– Supported operating systems: Windows, MacOS, Linux, iOS, Android
– eDMX4 MAX ISODIN22 – 4x DMX512 Out or DMX512 In with Art-Net, sACN E1.31 and E1.20 RDM support
– Art-Net broadcast, Art-Net II,3 & 4 unicast, sACN/E1.31 Multicast and sACN Unicast support
– Merge 2 incoming Art-Net/sACN streams per output channel with both HTP and LTP options
– Merge Art-Net/sACN + DMX input -> DMX output(s)
– Merge 2x DMX input -> DMX output(s)
– Split 1x DMX input -> 3x DMX outputs
– sACN Priority takeover for multi-tier controller arrangements
– Mix and match ArtNet with sACN merge/priority sources
– DMX-IN and DMX-OUT channel offset re-mapping
– User configuration of Art-Net Node short and long names
– Fully compatible with all software and hardware that supports Art-Net I, II, 3 & 4 and sACN protocols
– Works with your existing console if Art-Net or sACN external nodes are supported
– Universe Sync Art-Net, sACN and Madrix Post Sync
– Recording and playback to microSD card (not included). See eDMX MAX Record / Playback manual
– Standalone show playback without computer or network connection
– Internal clock with optional battery backup for timed playback. NTP time sync
– Configuration utility with basic Art-Net output/input test functionality
eDMX MAX translates Art-Net 00:0:0 to Universe 1 (i.e. offset by 1) so there is an easy mapping between sACN/E1.31 and Art-Net.

EXTERIOR VIEW

FRONT VIEW

Network 10/100Mbps RJ45 socket. Pluggable 2way 3.81mm pitch terminal block for 7-28Vdc power input. Four 4way 5mm pitch pluggable terminal block connectors for DMX512.

STATUS LED TABLE

LED	Indication
Protocol	Protocol activity. Flash Red = Art-Net/sACN. Solid Red = Bootloader mode
Link/Act	Network activity. Green = Link, Flash = Traffic
Port A	DMX512 Port A TX/RX activity
Port B	DMX512 Port B TX/RX activity
Port C	DMX512 Port C TX/RX activity
Port D	DMX512 Port D TX/RX activity

DEFAULT CONFIGURATION

All eDMX4 MAX DIN units ship with default IP address settings. Please reconfigure network settings as required before use.

Parameter	Default Setting
IP Address	192.168.0.112
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.254
IGMPv2 Unsolicited Report	Unchecked
Network Mode	Static IP address

DMX512 Port configuration parameter defaults.

Parameter	Default Setting
Async Update Rate	40 [DMX512 frames per second]. Universe Sync will override.
Port Operation Mode	DMX-OUT
Timeout all sources	Unchecked
Channel Offset	0
Fixed IP	0.0.0.0 [Only for DMX IN – Unicast to 1 IP address only]
Merge Mode	HTP
Full DMX Frame	Unchecked
*Broadcast Threshold	10 [Art-Net II/3/4 unicasting up to 10 nodes]. Set to 0 for Art-Net I broadcast on DMX IN ports.
Unicast IP [DMX-IN]	0.0.0.0
sACN Priority [DMX-IN]	100
RDM Discovery Period [DMX-OUT]	0s / RDM Disabled
RDM Packet Spacing [DMX-OUT]	1/20s
DMX-OUT Failsafe Mode	Hold Last
Recall DMX Snapshot at startup	Unchecked
DMX512 Universe	1-4 [Net 00, Subnet 0, Universe 0-3] **Note:** sACN Universe 1 = Art-Net 00:0:0

CONFIGURATION UTILITY

The eDMX Configuration utility provides a simple interface to all device parameters. Typically, these are set once during initial configuration and left untouched.

eDMX Configuration functions with primary Art-Net UDP 6454 and an alternate UDP 16454 port for device configuration. This is helpful when simultaneously running eDMX Configuration and a lighting control application. Automatic selection of alternate port is performed upon utility startup if the primary Art-Net port is unavailable. It is also possible to lock eDMX Configuration to the alternate port via the Advanced menu. Note that DMXking nodes are always listening on both primary and alternate ports so there is no device configuration required to change.
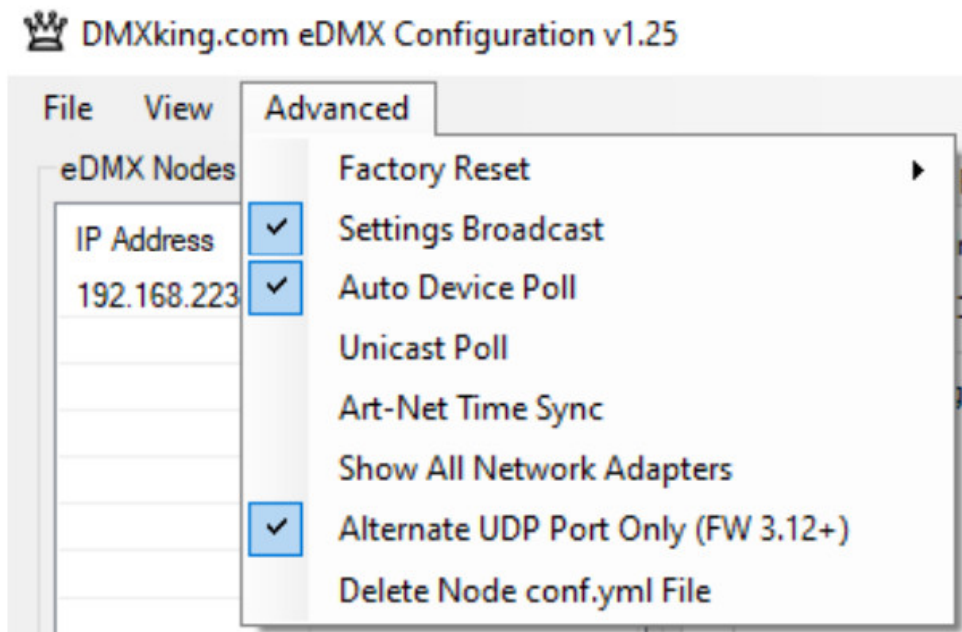
eDMX Node configuration can be saved/loaded from a simple Key:Value YML file. Select the node and perform Load/Save accessible in the File menu. Configuration files can be loaded from a file named "conf.yml" on the SD card however updates made to configuration are not currently saved by the node back to the conf.yml file. This is intended as a deployment mechanism where complete device configuration and show content can be prepared externally on an SD card.

NETWORK TAB

eDMX Configuration can find and configure eDMX MAX hardware on different IP subnets from the computer network adapter. There are some functions such as the Recorder that require both devices on the same IP subnet range e.g., Computer IP 192.168.0.100 Subnet 255.255.255.0 Gateway 192.168.0.254 when eDMX MAX is on default IP.
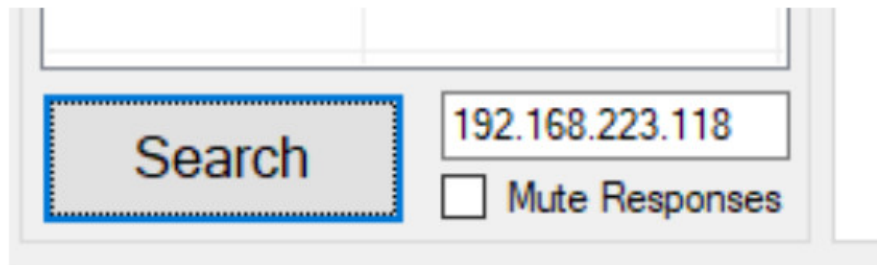
Upon startup eDMX nodes are automatically detected and displayed by IP address. To poll for new devices or just check the communications is okay by clicking Search. Polling is automatic every 8 seconds but can be disabled

through the Advanced Auto Device Poll menu option. Mute Responses option prevents any new nodes from being listed regardless of their status on the network. With large node counts this can be helpful.

Click on the desired node's entry and all Settings will be retrieved. Note that if no response is received the settings will be greyed out and no additional tabs visible. An activity box shows both transmitted and received messages to help with diagnosing communication issues. If your network configuration has multiple adapters and or IP addresses you should select the same network range as the eDMX from the Network Adapter IP Address dropdown box and also ensure the subnet mask is appropriate.
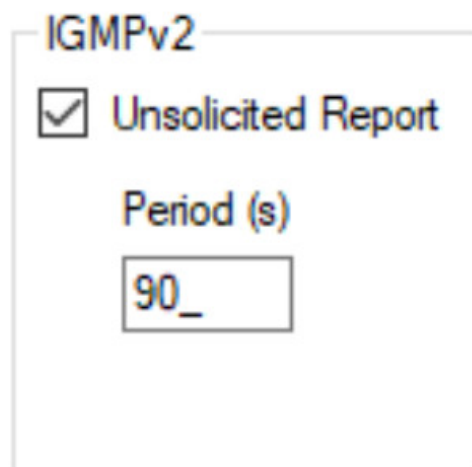
Settings Broadcast is suppored by eDMX MAX which allows node settings to be updated regardless of the network adapter subnet range.

Unicast single node discovery and configuration is possible by selecting Advanced Unicast Poll and entering the destination IPv4 address then click Search. This will function over routed networks provided a Default Gateway has been specified in the node Network Settings.

eDMX MAX nodes provide IGMPv2 Reports necessary to participate in a multicast environment as necessary for sACN/E1.31 protocol. Sometimes due to network infrastructure issues an IGMP querier is not present and in these situations, you can opt to have the node generate ongoing unsolicited IGMPv2 Reports.

To change the node Network Settings make applicable changes then click Update Network Settings.

Selecting Firmware Update will prompt for an appropriate firmware file and upload upon confirmation. A built-in boot loader permits updating of the eDMX firmware. We do not recommend performing firmware updates over routed networks. Note only signed encrypted firmware files from **DMXking.com** can be successfully loaded to ensure you won't brick your device by accident. Future firmware releases for this product will be in the form 0126-500-VersionMajor.VersionMinor.enc

PORT TAB

Port Operation Mode: DMX-OUT

Port Operation Mode: DMX-IN sACN with sACN Priority 100

DMX512 ports can be individually configured as either DMX-OUT, with automatic dual sACN/Art-Net protocol support, or DMXIN, with manually selected sACN or Art-Net protocol. When configured as DMX-IN a single Unicast IP address destination may be specified but in the majority of applications leaving this field at 0.0.0.0 is appropriate.

Timeout all sources can be used to override default ArtNet defined behavior of holding the last sent or received frame forever.

- DMX-OUT mode: Whenever 2 sources are present and being merged together a 2 source will always timeout when the stream stops. In DMX-OUT mode if Timeout all sources is unchecked and Hold Last mode selected the output will hold last frame forever. Timeout all sources checked and Failsafe Mode other than Hold Last selected will cause the output to change to Zero, Full or Snapshot Scene.

- DMX-IN mode: An ArtNet or sACN stream is generated upon receiving DMX512 on the port. Timeout all sources checked will cause this stream to end a few seconds after the DMX512 signal stops.

Channel Offset provides simple re-mapping for both DMX-OUT and DMX-IN port configurations. Set to 0 for no re-mapping.

- DMX-OUT mode: Incoming ArtNet or sACN stream(s) are re-mapped so channel 1 is pushed up to channel 1+N. When channel 1+N exceeds 512 the incoming stream channels are ignored/lost.
- DMX-IN mode: Incoming DMX512 is re-mapped so channel 1 is pushed up to channel 1+N on the outgoing ArtNet or sACN stream. When incoming DMX512 channel 1+N exceeds 512 to channels are ignored/lost.

Make changes to the applicable Port settings then click Update. Changes on all port tabs are updated regardless of which tab the Update button is clicked.

RECORDER TAB

Please refer to the eDMX MAX Recorder manual for more information. This functionality is common to all eDMX MAX and LeDMX MAX that include an SD card socket. Backup battery replacement procedure can also be located in that document.

DMX DISPLAY FUNCTION

Select View | DMX Display for a simple DMX512 test utility. To generate an Art-Net output stream click Transmit then select one of the 6 Transmit Options and change Art-Net Universe as applicable. When in Manual mode you can click on any of the channels (represented by small boxes with hexadecimal channel level inside) to set ON level and double click to set zero. The mouse scroll wheel adjusts a channel by a defined increment. Channel number increases left to right, top to bottom and the roaming tool tip provides information about a specific channel.

Both the ON level and mouse wheel step can be set by right clicking anywhere within the black display area. Number of channels transmitted and the refresh rate can be adjusted using the applicable sliders adjacent to transmit options.
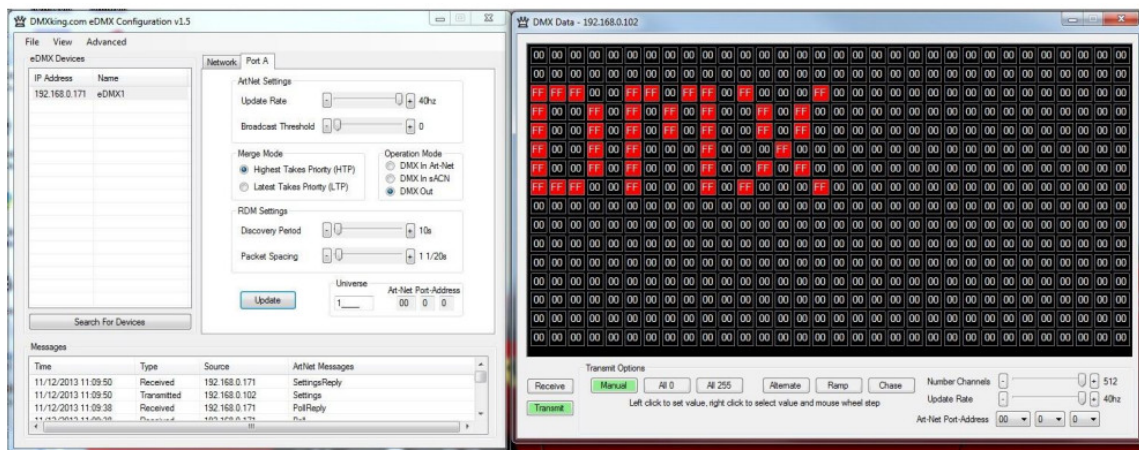
Changing to Receive mode will display the selected Art-Net universe number with merged streams if more than 1 is present.
Note Art-Net II unicast is not supported meaning only Art-Net broadcast streams are displayed.
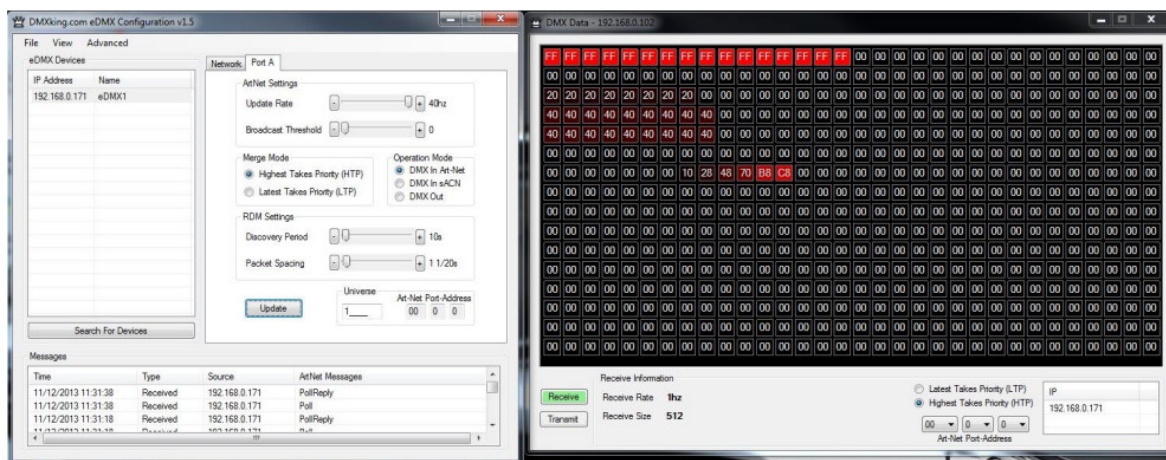
The DMX Display utility works with any manufacturers Art-Net hardware and can be useful for diagnostics and simple testing of DMX512 fixtures.

NODE REPORT

Node provide a brief status report indicating DMX frame rates, SYNC status, SHOW playback selection and RECorder status.

Node Report: #0001[11]DMX:40,40,40,40 SYNC:Async SHOW:000 REC:Idle

Above an eDMX4 MAX ISODIN22 reports Port A,B,C,D at 40fps with no synchronization present (A sync mode) and the recorder state Idle.

Node Report: #0001[7]DMX:0,0,0,0 SYNC:Async SHOW:000 REC:No SD

In the example above the recorder status indicates there is No SD card present.

ART-NET NODE NAME

The Art-Net protocol supports device naming which can make larger installations more manageable. Both Short Name (17 characters) and Long Name (63 characters) for an eDMX Device can be edited in the Node Information box.

Node Information
Hardware   **eDMX4 MAX DIN**   Firmware Version   **4.0**
Short Name **eDMX4 MAX 360000**   Update Name
Long Name   **DMXking.com eDMX4 MAX DIN S/N 001A19360000**

FACTORY RESET

Factory Reset should only be used when all communication is lost over network and that is typically caused by incorrect network setup rather than a problem with the eDMX MAX node.

- **Level 1:** Factory Reset eDMX MAX configuration. With the device powered on press and hold FACTORY RESET button for 10 seconds.
- **Level 2:** Factory Reset to Bootloader and no firmware. With the device powered off press and hold FACTORY RESET button whilst powering on. Follow procedure to manually load firmware to default IP address or use Find My eDMX application.
- **Level 3:** Force ROM Bootloader. Not for end user.

eDMX Configuration Factory Reset (Legacy devices) menu is not relevant to eDMX MAX devices and will not have any effect.

SUMMARY OF SETTINGS

Parameter	Usage
MAC Address	Factory programmed Ethernet MAC address
IP Address	IPv4 network address
Subnet Mask	Subnet mask, typically 255.0.0.0, 255.255.0.0 or 255.255.255.0 for class A,B & C respectively
Default Gateway	Address of network gateway (router) for communications beyond local subnet
Network Mode	DHCP or Static IPv4
IGMPv2 Unsolicited Report	IGMPv2 Report messages sent at 5-255 second intervals
Port Operation Mode	DMX-IN Art-Net, DMX-IN sACN, DMX OUT (both Art-Net and sACN are always enabled). Fixed IP is 0.0.0.0 by default which equates to multicast sACN or automatic unicast/broadcast Art-Net. Setting a Fixed IP forces DMX-IN ArtNet or sACN unicast to 1 IP only.
Timeout all sources	Last Art-Net or sACN stream source if lost will timeout DMX-OUT. Loss of DMX-IN signal will timeout outgoing ArtNet or sACN stream.
Channel Offset	Re-mapping for DMX-OUT or DMX-IN streams
A sync Update Rate	DMX512 output frame rate/frequency. Universe Sync takes precedence.
Merge Mode	HTP (Highest Takes Precedence – dimmers), LTP (Last Takes Precedence — moving lights)
Full DMX Frame	Force DMX-OUT or DMX-IN to full 512 channel frames with zero levels filling gaps
Broadcast Threshold	0 = Force Art-Net broadcast mode, > 0 Art-Net 11/3/4 unicast until threshold (DMX-IN)
Unicast IP	Single IPv4 destination for unicast ArtNet or sACN from DMX-IN
sACN Priority	DMX-IN sACN Priority value assigned to sACN stream. 0— 200, default 100
RDM Discovery Period	Number of seconds between internally initiated RDM Discovery attempt. Setting Discovery Period = Os will disable RDM
RDM Packet Spacing	Number of 1/20sec intervals enforced minimum between RDM messages on DMX line
DMX-OUT Failsafe Mode	ArtNet failsafe mode selection. Timeout All Sources must be checked for all options other than Hold Last.
Recall DMX snapshot at startup	Recall snapshot scene at power on and output until Art-Net or sACN stream received. Snapshot DMX button records current DMX output to snapshot memory.
DMX Universe	sACN 1-63999 which is translated to an Art-Net Port-Address (Net: Sub: Uni). Setting DMX Universe = 1 results in sACN Universe = 1 and Art-Net 00:0:0 (Universe 1 = Art-Net Universe 0)

PORTS, MERGING, PRIORITY AND DMX INPUT

PORTS AND MERGING

Each DMX Port is fully independent which allows for configurations including setting multiple ports to the same universe.

eDMX MAX nodes are capable of several advanced merging and stream selection functions. Support for both HTP (Highest Takes Precedence) and LTP (Latest Takes Precedence) merging of 2 sources producing a single DMX512 output thus permitting 2 controllers to simultaneously operate on 1 lighting rig. To achieve DMX stream merging simply send 2 Art-Net or sACN streams on the same Universe and configure the applicable DMX OUT port merge scheme HTP or LTP. If the number of sources exceeds 2 only the first 2 will be processed and all new streams that appear are simply dropped. Possible merging sources are:

Source	Notes
Art-Net I, II, 3 or 4	Priority 100 is assigned to permit Art-Net + sACN merge/priority functionality.
sACN / E1.31	Only sACN sources of the same Priority will be HTP or LTP merged.
DMX-IN Art-Net	Configure DMX-IN port universe to match a DMX-OUT port universe. Priority is locked to 100 since Art-Net does not have a Priority value.
DMX-IN sACN	Configure DMX-IN port universe to match a DMX-OUT port universe. Priority is defined by the port configuration sACN Priority.

SUPPORTED MERGING COMBINATIONS

Source 1	Source 2	Notes
Art-Net	Art-Net	Sources are timed out 3 seconds after last received frame.
sACN / E1.31	sACN / E1.31	Sources will end immediately upon sACN stream termination flag, otherwise 3 second timeout after last received frame.
Art-Net	sACN / E1.31	Art-Net source timed out 3 seconds after last received frame, sACN stream termination flag otherwise 3 second timeout after last received frame.
DMX-IN	Art-Net	Merge external DMX512 source with incoming Art-Net stream.
DMX-IN	sACN / E1.31	Merge external DMX512 source with incoming sACN stream.
DMX-IN (1)	DMX-IN (2)	Merge 2 external DMX512 sources. Priority is defined by the respective port configuration sACN Priority.

SACN / E1.31 PRIORITY

At any time if a higher priority sACN stream, on the same Universe, is received it will take over control a DMX-OUT port regardless of other incoming streams or merging. When an sACN stream is stopped gracefully via a stream terminate message the eDMX port will immediately revert to whatever other sources are present, otherwise the default stream timeout of 3 seconds applies. If you want to HTP/LTP merge two sACN streams together they must be of the same priority.

ACN / E1.31 PRIORITY – DMX RECEIVE

When a port is configured for DMX-IN sACN operation the sACN Priority can be set. This permits DMX Inputs to generate sACN multicast or unicast streams with a specific priority.

DMX512 IN – UNICAST / BROADCAST / MULTICAST

When you feed a DMX512 signal into an eDMX Port configured as DMX-IN Art-Net the following will determine Art-Net unicast or broadcast:

1. If Broadcast Threshold = 0 the frame is always broadcast on the IP subnet.
2. If Broadcast Threshold > 0 and number of detected Art-Net II/3/4 devices "subscribed" to that universe is less than the threshold the frame is unicast to each device.
3. If Broadcast Threshold > 0 and the number of detected Art-Net II/3/4 devices "subscribed" to that universe is greater than the threshold the frame is broadcast on the subnet.
4. If Broadcast Threshold > 0 and zero Art-Net II/3/4 devices are "subscribed" to that universe the frame is broadcast on the subnet.
5. If Fixed IP is not 0.0.0.0 the frame is only unicast to the specified IPv4 address.

As you can see there are multiple ways broadcast could occur. The implementation is done like this to ensure compatibility with mixed Art-Net I/II/3/4 device networks but still permit unicast when Art-Net II/3/4 devices are used exclusively.
For DMX-IN sACN multicast frames will be generated when Fixed IP is 0.0.0.0 otherwise frames are unicast to the specified destination.

COMPATIBLE SOFTWARE

Art-Net/sACN and DMX512 are the most commonly used lighting control protocols with roots in simple theatrical light dimming. These days almost any lighting or stage effect equipment may be controlled using DMX512 (with explicit exclusion of anything involving potentially dangerous operations such as pyrotechnics) including moving lights, LED screens, fog machines and laser displays.
The DMXking eDMX4 unit is a 4 universe Art-Net/sACN device designed for use with computer based show control software or expansion of lighting console outputs. It replaces an entire lighting console allowing the user to perform sophisticated shows with little more than a laptop. There are many free and commercial software packages available and by selecting Art-Net as your DMX device compatibility is guaranteed.
Check the following page for a short list of compatible software: **http://dmxking.com/control-software**

TECHNICAL SPECIFICATIONS

- Dimensions: 22.5mm x 125mm x 100mm (WxHxD)
- Weight: 130 grams (0.29lbs)
- DC Power input 7-28Vdc, 3W max. Typical current consumption @ 12Vdc 200mA
- USB-C power input
- DMX512 connector: 4 way 5mm pitch terminal block.
- DMX512 ports electrically isolated.
- Optional Earth referenced DMX outputs – jumper wire between DMX Common and Earth on output connector.
- Ethernet 10/100Mbps Auto MDI-X port.
- Internal DMX512-A line biasing termination as per ANSI E1.20 RDM requirements
- Art-Net, Art-Net II, Art-Net 3, Art-Net 4 and sACN/E1.31 support.
- ANSI E1.20 RDM compliant with RDM over Art-Net. Not available in firmware 4.0
- Universe Sync Art-Net, sACN and Madrix Post Sync.
- Both HTP and LTP merging of 2 Art-Net streams per port
- sACN Priority
- Internal merging capability with DMX In and DMX Out ports on same Universe.
- IPv4 Addressing
- IGMPv2 for multicast network management
- DMX512 Frame Rate: Adjustable per port

- Operating temperature -20ºC to 50ºC non-condensing dry environment

ARRANTY

DMXKING HARDWARE LIMITED WARRANTY
What is covered
This warranty covers any defects in materials or workmanship with the exceptions stated below.
How long coverage lasts
This warranty runs for two years from the date of shipment from an authorized DMXking distributor.
What is not covered
Failure due to operator error or incorrect application of product.
What DMXking will do
DMXking will repair or replace, at its sole discretion, the defective hardware.
How to obtain service
Contact your local distributor or visit **https://www.dmxking.com**

Documents / Resources

eDMX4 MAX ISODIN22	**DMXking eDMX4 MAX ISODIN22 4 Port ArtNet or sACN Via Ethernet to DMX 512 Converter** [pdf] User Manual 0130-1.1, eDMX4 MAX ISODIN22 4 Port ArtNet or sACN Via Ethernet to DMX 512 Converter, eDMX4 MAX ISODIN22, 4 Port ArtNet or sACN Via Ethernet to DMX 512 Converter

References

- ♛ **HOME**
- ♛ **Control Software**
- ♛ **HOME**
- ♛ **HOME**